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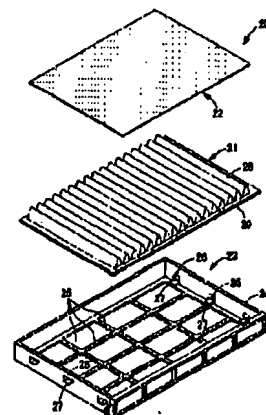
弁護士 柳野 啓生

(54)【発明の名称】 カーエアコン用フィルター

(57)【要約】

【課題】 車室内の塵埃を一層向上し得るカーエアコン用フィルターを提供する。

【解決手段】 自動車用の空調装置に組み付けられるカーエアコン用フィルターであって、塵や埃を除去するフィルター本体21と、芳香剤、消臭剤、脱臭剤、殺菌剤、フィナスイオン発生機能の少なくとも1つの機能を付与した副濾材22と、フィルター本体21及び副濾材22を収容する枠体23とを備えた。



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【特許請求の範囲】

【請求項1】 自動車の空調装置に組み付けられるカーエアコン用フィルターであって、塵や埃を除去するフィルター本体と芳香機能、消臭機能、脱臭機能、殺菌機能、マイナスイオン発生機能の少なくとも1つの機能を付与した機能付と、

前記フィルター本体及び機能付を収容する枠体と、

を備えたことを特徴とするカーエアコン用フィルター、

【請求項2】 前記機能付がシート状、スティック状又はひも状である請求項1記載のカーエアコン用フィルター、

【請求項3】 前記フィルター本体の上流側に脱臭機能、消臭機能、マイナスイオン発生機能の少なくとも1つの機能を付与した機能付を配置し、下流側に芳香機能を付与した機能付を配置した請求項1又は2記載のカーエアコン用フィルター、

【請求項4】 自動車の空調装置に組み付けられるカーエアコン用フィルターであって、

塵や埃を除去するとともに芳香機能、消臭機能、脱臭機能、殺菌機能、マイナスイオン発生機能の少なくとも1つの機能を付与したフィルター本体と、

前記フィルター本体を収容する枠体と、

を備えたことを特徴とするカーエアコン用フィルター、

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 本発明は、カーエアコン用フィルターに関する。

【0002】

【従来の技術】 自動車の空調装置はインストルメントパネル内にビルトインされている関係上、フィルターの交換が困難になることから、フィルターを交換しないものが主流であったが、車室内の環境に対するユーザーの要求が厳しくなり、最近では車室内に汚濁や埃を除去するためのフィルターを備えたものも普及しつつある。一方、車室内の空調装置のフィルターとして、活性炭、ゼオライト又はシリカゲル等の吸着媒体を一体的に設け、フィルターに対して消臭機能や脱臭機能を付与したものが提案され実用化されている。

【0003】

【発明が解決しようとする課題】 前述のように、自動車の空調装置としてフィルターを設けたものが最近になって普及しつつあるが、現在提案されているフィルターは、塵や埃を除去することを主目的とした除塵フィルターであり、芳香機能、消臭機能、脱臭機能、殺菌機能、マイナスイオン発生機能を付与したものは実用化されていないのが現状であり、車室内の環境を十分に改善できるまでには至っていないものであった。

【0004】 本発明は、車室内の環境を一層向上し得るカーエアコン用フィルターを提供することである。

【0005】

【課題を解決するための手段及びその作用】 請求項1に係るカーエアコン用フィルターは、自動車の空調装置に組み付けられるカーエアコン用フィルターであって、塵や埃を除去するフィルター本体と、芳香機能、消臭機能、脱臭機能、殺菌機能、マイナスイオン発生機能の少なくとも1つの機能を付与した機能付と、前記フィルター本体及び機能付を収容する枠体とを備えたものである。

【0006】 このフィルターにおいては、芳香機能、消臭機能、脱臭機能、殺菌機能、マイナスイオン発生機能の少なくとも1つの機能を付与した機能付を備えているのでフィルターを通過する空気に対して芳香を付与したり、フィルターを通過する空気から臭気や悪臭等を除去することが可能となる。また、フィルターに機能付を設けているので、例えば6ヶ月毎に行う車両点検時にフィルター本体とともに機能付を交換することが可能となり、ユーザーの手を煩わすことなく機能付を交換できる。但し、枠体を含むフィルター全体を交換することも可能である。

【0007】 請求項2記載のフィルターは、前記機能付がシート状、スティック状又はひも状であるものである。機能付の形状は、フィルターの取り付け位置やフィルターの構成に応じて任意に設定可能であるが、シート状やスティック状やひも状の機能付は、フィルターへの組付けがよいので好ましい形態である。

【0008】 請求項3記載のフィルターは、前記フィルターの上流側に脱臭機能、消臭機能、マイナスイオン発生機能の少なくとも1つの機能を付与した機能付を配置し、下流側に芳香機能を付与した機能付を配置したものである。このように構成すると、空調装置に導入された空気中のいかなる臭いの成分を除去した後に、芳しい臭いが添加されるので、臭いが残ることによる車室内環境の低下を防止できる。

【0009】 請求項4に係るカーエアコン用フィルターは、自動車の空調装置に組み付けられるカーエアコン用フィルターであって、塵や埃を除去するとともに芳香機能、消臭機能、脱臭機能、殺菌機能、マイナスイオン発生機能の少なくとも1つの機能を付与したフィルター本体と、前記フィルター本体を収容する枠体とを備えたものである。

【0010】 このフィルターにおいては、フィルター本体に芳香機能、消臭機能、脱臭機能、殺菌機能、マイナスイオン発生機能の少なくとも1つの機能を付与しているので、フィルターを通過する空気に対して芳香を付与したり、フィルターを通過する空気から臭気や悪臭等を除去することが可能となる。また、フィルター本体にこれらの機能を付与しているので、フィルターを構成する部品点数を増やすことなく、車室内の環境を積極的に向上できるとともに、例えば6ヶ月毎に行う車両点検時に、

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フィルター本体あるいは枠を含むフィルター全体を交換すること、ユーザの手を煩わすことなく、構造の維持や変更が可能となる。

【0011】

【発明の要約】以下、本発明の実施の形態について、図面を参照しながら説明する。図1に示すように、空調装置1は、自動車インストルメントパネル内に組み込まれ、空調装置1のダクト2の一側部には、車室内に開口する外気導入口3と車室内に開口する内気導入口4とが形成され、他端部には、乗員の足下に開口するヒート吹出口5と、乗員の上部へ向けて開口するベント吹出口6と、フロントガラスに向けて開口するデフロスタ吹出口7とが形成されている。ダクト2の上流部には送風機8が配置され、送風機8よりも下流部にはヒータコア9と冷却装置の蒸発器10とが配置されている。ダクト2の途中部にはダクト2内における空気の流れを切替えるための複数の切替ダンパ11が設けられ、外気導入口4からダクト2内に導入した空気は、ヒータコア9又は蒸発器10を通過して温度及び湿度を調整した後、所望の吹出口5、6、7から車室内へ供給されるように構成されている。但し、空調装置1としては上述した構成以外のものを使用することが可能である。

【0012】本発明の特徴とする構成は、吹出口5、6、7から車室内へ供給される空調エアに含まれる塵や埃を除去するフィルター20を設け、このフィルター20に対して、芳香剤、消臭剤、脱臭剤、殺菌剤、マイナスイオン発生機能の少なくとも1つの機能を付与した点にある。

【0013】フィルター20は、図1に示すように、送風機8と同側入口3、4間のダクト2内に着脱自在に介装されている。本実施例では、図示していないが、送風機8が助手席の側のインストルメントパネル内に配置され、フィルター20は送風機8の上側に略水平にして組み付けられている。但し、ダクト2の途中部あるいは各吹出口5、6、7付近に着脱自在に配置することも可能である。

【0014】フィルター20は、図2、図3に示すように、塵や埃を除去するフィルター本体21と、芳香剤、消臭剤、脱臭剤、殺菌剤、マイナスイオン発生機能の少なくとも1つの機能を付与した機能材22と、フィルター本体21と機能材22とを収容する枠体23とから構成されている。

【0015】枠体23は、方形枠状の枠部24と、枠部24の下側部に横断状に設けられた横部25とを備えており、枠部24の途中部には内側へ延びる爪部26と受部27とが一定間隔おきに上下に形成され、フィルター本体21は、その外周部を受部27に嵌合して爪部26に

より脱離不能に係止されている。但し、枠体23としては、空路装置1に適合した任意の形状のものを使用できる。

【0016】フィルター本体21は、通気性を有するフィルター材28と、その外周部に設けられた密封部29とを備えている。フィルター材28の素材としては、天然又は合成樹脂製あるいはこれらの混合物よりなる繊維材や不織布や紙等を使用することが可能である。また、フィルター材28は略平面に構成することも可能であるが、空気の通過面積を極力大きく設定するため、図2、図3に示すように湾形断面に構成することが好ましい。但し、密封部29は省略することも可能である。

【0017】機能材22は、フィルター材28と同様の通気性を有するシート状の基材に、芳香剤、消臭剤、脱臭剤、殺菌剤、マイナスイオン発生機能などの機能を有する物質を付着あるいは含浸等させて担持させたものであり、この機能材22は、フィルター材28の上表面全体あるいは上面の一部を覆うように配置され、フィルター材28上に敷設あるいは接合剤やテープ等により固定されている。但し、機能材22は、フィルター材28の下側に配置してもよいし、図4に示すように、フィルター材28の上下両側に機能材22、30を配置してもよい。上下両側に配置する場合には、空気の流れる上流側の機能材22として、消臭剤、脱臭剤、マイナスイオン発生機能のいずれかを付与したものを使用し、下側の機能材30として芳香剤を有するものを使用することが好ましい。また、機能材の異なる機能材22を複数層状に一体化させた機能材を使用することも可能である。

【0018】芳香剤を有する素材としては、樹脂系、植物系、動物系の天然香料、合成香料を使用することが可能である。また、6ヶ月点検等で交換する場合には、その期間内においては芳香性が保証されるように構成することが好ましい。また、点検の芳香剤を使用してもよいが、芳香時間を長く設定することが困難なので、固形状やゲル状の芳香剤を使用することが好ましい。

【0019】消臭剤、脱臭剤を有する素材としては、活性炭、ゼオライト、シリカゲル、硫酸、亜酸化合物、硫酸塩、アルミニウム塩、硫酸塩などの無機物、クエン酸、アスコルビン酸、各種植物抽出物などの有機の素材を利用できる。

【0020】マイナスイオン発生機能を有する素材としては、トルマリン鉱石が好適に利用できる。このトルマリン鉱石は、水と摩擦することにより、水素とヒドロキシルイオン（マイナスイオン）とを生成し、このヒドロキシルイオンが空気中に浮遊することで、空気を清浄化したり、臭気や塵埃を消臭、殺菌するものである。また、前述のようにトルマリン鉱石は、水と摩擦することにより、浄化作用を発揮するので、トルマリン鉱石に摩擦するようにシート体内に吸水性ポリマーを配置させ、

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水分との接触を促進させてもよい。但し、マイナスイオンを発生できるものであれば、トルマリン鉱石以外の素材を用いることも可能である。

【0021】尚、図5、図6に示すフィルター20Aのように、スティック状の繊維材22Aを用いることも可能である。この場合には、フィルター本体21の流路部に繊維材22Aを配置させることで、フィルター本体21に対して移動しないように繊維材22Aを固定できるので好ましい。また、繊維材22としては棒状や筒状、ヒース状又はチップ状のものを用いてもよい。また、繊維材22を省略し、フィルター20に対して芳香剤、消臭剤、脱臭剤、殺菌剤、マイナスイオン発生機能の少なくとも1つの機能を付与することも可能である。

【0022】請求項1に係るカーエアコン用フィルターによれば、空調装置の吸出口から吹き出す空気に芳香剤を添加したり、防臭気から臭気や悪臭を除去できるので、車室内の環境を格段に向上できる。また、フィルターに繊維材を備えているので、例えば6ヶ月間に行う車両点検時にフィルター本体とともに繊維材を交換することが可能となり、ユーザーの手を煩わすことなく、繊維材を交換することも可能となる。

【0023】請求項2記載のように、繊維材がシート状、スティック状又は棒状である場合には、フィルターに対する繊維材の取り付けを向上できる。請求項3記載のように、フィルターの下流側に芳香剤、消臭剤、マイナスイオン発生機能の少なくとも1つの機能を付与した繊維材を配置すると、臭いが吸着することによる車室内環境の低下を防止できる。

* 【0024】請求項4に係るカーエアコン用フィルターによれば、フィルター本体に芳香剤、消臭剤、脱臭剤、殺菌剤、マイナスイオン発生機能の少なくとも1つの機能を付与しているため、フィルターを構成する部品点数を増やすことなく、請求項1と同様に、車室内の環境を格段に向上できるとともに、例えば6ヶ月間に行う車両点検時に、フィルター本体のみは枠体を含むフィルター全体を交換することで、ユーザーの手を煩わすことなく、繊維の経年劣化や変更が可能となる。

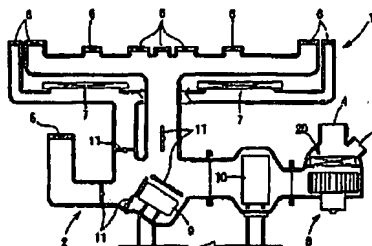
【図面の簡単な説明】

【図1】 自動車用の空調装置の全体構成図
【図2】 フィルターの分解斜視図
【図3】 フィルターの要部断面図
【図4】 他の種類のフィルターの要部断面図
【図5】 他の種類のフィルターの分解斜視図
【図6】 同フィルターの要部断面図

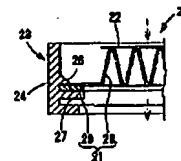
【符号の説明】

1	空調装置	2	ダクト
3	外気吸入口	4	内気吸入口
5	ヒート吹出口	6	ベント吹出口
7	デフロスタ吹出口	8	送風機
9	ヒータコア	10	蒸発器
11	切替ダンパ		
20	フィルター	21	フィルター本体
22	繊維材	23	枠体
24	枠部	25	側部
26	爪部	27	受部
28	フィルター材	29	繊維材
30	繊維材		
30A	フィルター	22A	繊維材

【図1】



【図3】



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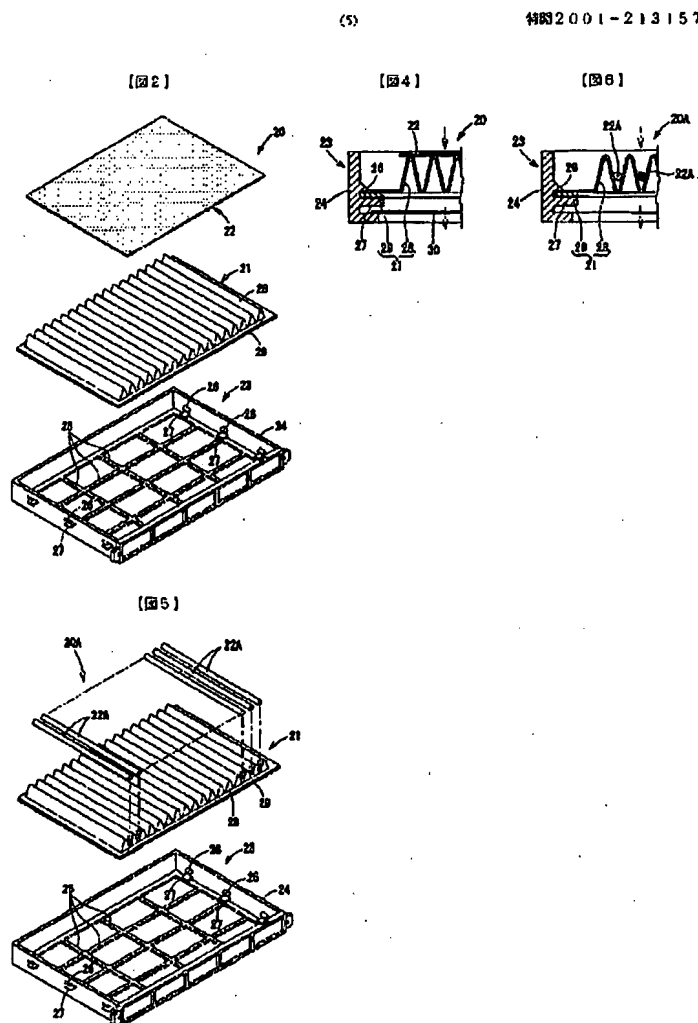
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PATENT ABSTRACTS OF JAPAN

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(22)Date of 07.02.2000
filing :

(72)Inventor : MASUDA FUMIHIRO

(54) FILTER FOR CAR AIR CONDITIONER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a filter for car air conditioner, capable of improving a cabin environment further.

SOLUTION: This filter, mounted on an car air conditioner, is provided with a filter body 21 for removing dust, a function member 22 having at least one of an around function, an odor removing function, a deodorizing function, a sterilizing function, and a minus ion generating function, and a frame body 23 housing the filter body 21 and the function member 22.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the filter for car air-conditioners.

[0002]

[Description of the Prior Art] Since exchange of a filter became complicated on the relation incorporated in the instrument panel, as for the air conditioner of an automobile, what does not prepare a filter was in use, but a demand of the user to the environment of the vehicle interior of a room becomes severe, and recently, in order to remove the dust and dust which drift in a vehicle room, the thing equipped with the filter is also spreading. On the other hand, as a filter of an air conditioner for home use, adsorbent objects, such as activated carbon, a zeolite, or silica gel, are established in one, and what gave the deodorization function and the deodorization function to the filter is proposed and put in practical use.

[0003]

[Problem(s) to be Solved by the Invention] As mentioned above, although what prepared the filter as an air conditioner of an automobile is recently spreading The filter by which the current proposal is made is a dust filter which made it the key objective to remove dust and dust. What gave an aroma function, the deodorization function, the deodorization function, the sterilization function, and the anion generating function was what the actual condition is not put in practical use, and will not have resulted by the time the environment of the vehicle interior of a room is fully improvable.

[0004] This invention is offering the filter for car air-conditioners which may improve the environment of the vehicle interior of a room further.

[0005]

[Means for Solving the Problem and its Function] The filter for car air-conditioners concerning claim 1 is a filter for car air-conditioners attached to the air conditioner of an automobile, and is equipped with the frame which holds the functional material which gave at least one function of the body of a filter from which dust and dust are removed, an aroma function and a deodorization function, a deodorization function, a sterilization function, and an anion generating function, and said body of a filter and functional material.

[0006] In this filter, since it has the functional material which gave at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function, to the air which passes a filter, aroma is given or it becomes possible

to remove a nasty smell, an offensive odor, etc. from the air which passes a filter. Moreover, since functional material is prepared in the filter, it becomes possible to exchange functional material with the body of a filter at the time of the car check performed every six months, for example, and functional material can be exchanged, without troubling a user's hand. However, it is also possible to exchange the whole filter containing a frame.

[0007] Said functional material of a filter according to claim 2 has the shape of the shape of a sheet, the shape of a stick, and a string. Although the configuration of functional material can be set as arbitration according to the configuration of the installation location of a filter, or a filter, since the functional material of the shape of the shape of the shape of a sheet or a stick or a string has the good assemblability to a filter, it is a desirable gestalt.

[0008] A filter according to claim 3 arranges the functional material which gave at least one function of a deodorization function, a deodorization function, and an anion generating function to the upstream of said filter, and arranges the functional material which gave the aroma function to the downstream. Thus, since a sweet smell will be added after removing the disagreeable stinking thing component in the air introduced into the air conditioner if constituted, the fall of the vehicle indoor environment by a smell being mixed can be prevented.

[0009] The filter for car air-conditioners concerning claim 4 is a filter for car air-conditioners attached to the air conditioner of an automobile, and is equipped with the body of a filter which gave at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function while removing dust and dust, and the frame which holds said body of a filter.

[0010] In this filter, since at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function is given to the body of a filter, to the air which passes a filter, aroma is given or it becomes possible to remove a nasty smell, an offensive odor, etc. from the air which passes a filter. moreover, maintenance and modification of a function are attained, without troubling a user's hand by exchanging the whole filter which contains the body of a filter, or a frame at the time of the car check performed every six months, for example, while boiling the environment of the vehicle interior of a room markedly and being able to improve, without increasing the components mark which constitute a filter since these functions are given to the body of a filter.

[0011]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained, referring to a drawing. As shown in **drawing 1**, an air conditioner 1 is incorporated in the instrument panel of an automobile, the open air inlet 3 which carries out opening to vehicle outdoor, and the bashful inlet 4 which carries out opening to the vehicle interior of a room are formed, and the heat outlet 5 which carries out opening at crew's feet, the vent outlet 6 which carries out opening towards crew's upper part of the body, and the defroster outlet 7 which carries out opening towards a windshield are formed in the other end at the end section of the duct 2 of an air conditioner 1. A blower 8 is arranged at the upper section of a duct 2, and the heater core 9 and the evaporator 10 of a cooling system are arranged rather than the blower 8 at the downstream. Two or more change dampers 11 for changing the flow of the air in a duct 2 to the section in the middle of a duct 2 are formed. It is constituted so that the change of open air installation or bashful circulation, the change of heating or air conditioning, and the change of the outlets 5, 6, and 7 of air-conditioning air can be performed. After passing the heater core 9 or an evaporator 10 and adjusting temperature and humidity, the air introduced in the duct 2 from the

open air inlet 3 or the bashful inlet 4 with the blower 8 is constituted so that the desired outlets 5 and 6 and 7 empty-vehicle interior of a room may be supplied. However, it is possible to adopt things other than the configuration mentioned above as an air conditioner 1.

[0012] The configuration by which it is characterized [of this invention] forms outlets 5 and 6 and the filter 20 from which the dust contained in the air-conditioning air supplied to 7 empty-vehicle interior of a room and dust are removed, and is in the point which gave at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function to this filter 20.

[0013] The filter 20 is infixed free [attachment and detachment] into the blower 8, and both the inlets 3 and the duct 2 between four, as shown in drawing 1. In this example, although not illustrated, a blower 8 is arranged in the instrument panel by the side of before a passenger seat, and a filter 20 is made into an abbreviation horizontal and attached to the blower 8 bottom. However, it is also possible to arrange free [attachment and detachment] to the section or each outlets 5 and 6, and the seven neighborhoods in the middle of a duct 2.

[0014] The filter 20 consists of frames 23 which hold the functional material 22 which gave at least one function of the body 21 of a filter from which dust and dust are removed, an aroma function and a deodorization function, a deodorization function, a sterilization function, and an anion generating function, and the body 21 of a filter and the functional material 22, as shown in drawing 2 and drawing 3.

[0015] the crosspiece which has arranged the frame 23 in the shape of crossing to the rectangular frame-like frame part 24 and inferior-surface-of-tongue side of a frame part 24 -- the section 25 -- having -- **** -- a frame part 24 -- on the way -- the claw part 26 and receiving part 27 which are prolonged to the inside are formed in the section up and down every fixed spacing, and the body 21 of a filter lays the periphery section in a receiving part 27, and is stopped by omission impossible by the claw part 26. However, as a frame 23, the thing of the configuration of the arbitration which suited the air conditioner 1 is employable.

[0016] The body 21 of a filter is equipped with the filter material 28 which has permeability, and the reinforcement frame 29 prepared in the periphery section. It is possible to adopt the fiber material and nonwoven fabric which consist of nature, products made of synthetic resin, or such mixed elegance, paper, etc. as a material of a filter material 28. Moreover, although a filter material 28 can also be constituted in abbreviation flatness, in order to set up the passage area of air greatly as much as possible, it is desirable to constitute in a wave cross section, as shown in drawing 2 and drawing 3. However, the reinforcement frame 29 can also be omitted.

[0017] Functional material 22 makes a filter material 28 and the base material of the shape of a sheet which has the same permeability carry out adhesion, sinking in, etc., and makes them support the matter which has functions, such as an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function, and this functional material 22 is arranged so that it may cover in a part of the whole top face of the filter member 28, or top face, and it is being fixed on installation or adhesives, a tape, etc. on a filter material 28. However, the functional material 22 may be arranged to the filter material 28 down side, and as shown in drawing 4, it may arrange the functional material 22 and 30 on vertical both sides of a filter material 28. When arranging on vertical both sides, it is desirable to use what gave the deodorization function, the deodorization function, or the anion generating function as functional material 22 of the upstream of the flow of air, and to use what has an aroma function as lower functional material 30. Moreover, it is also possible to use the functional material which

made the functional material 22 from which a function differs unify in the shape of two or more laminatings.

[0018] As a material which has an aroma function, it is possible to use the natural aromatic of an animal system, a vegetable system, and a mineral system and synthetic perfume. Moreover, when exchanging by check etc. for six months, it is desirable to constitute so that fragrance may be guaranteed within the period. Although a liquefied aromatic may be used, since it is difficult to set up aroma time amount for a long time, it is desirable to use the shape of a solid and a gel aromatic.

[0019] As a material which has a deodorization function and a deodorization function, the material of common knowledge, such as mineral salt, such as activated carbon, a zeolite, silica gel, an iron sulfate, a zinc compound, a silicate mineral, an aluminum salt, and silicate, a citric acid, ascorbic-acid iron, and various plant extracts, can be used.

[0020] As a material which has an anion generating function, a tourmaline ore can use suitably. By contacting water, this tourmaline ore generates hydrogen and hydroxyl ion (anion), and it is that this hydroxyl ion floats in air, and air is defecated or it deodorizes [deodorizes a nasty smell and an offensive odor and] them. Moreover, as mentioned above, since a tourmaline ore discovers a cleaning effect by contacting water, it may arrange an absorptivity polymer to the sheet inside of the body so that a tourmaline ore may be contacted, and may promote contact for moisture. However, if an anion can be generated, it is also possible to use materials other than a tourmaline ore.

[0021] In addition, it is also possible to use stick-like functional material 22A like filter 20A shown in drawing 5 and drawing 6. In this case, since functional material 22A is fixable so that it may not move to the wave trough section of the body 21 of a filter to the body 21 of a filter by arranging functional material 22A, it is desirable. Moreover, as functional material 22, the thing of the shape of the shape of a string, the shape of tubed and a bead, or a chip may be adopted. Moreover, it is also possible to omit the functional material 22 and to give at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function to a filter 20.

[0022]

[Effect of the Invention] since according to the filter for car air-conditioners concerning claim 1 aroma can be added to the air which blows off from the outlet of an air conditioner or a nasty smell and an offensive odor can be removed from this air, the environment of the vehicle interior of a room is boiled markedly, and it can improve. Moreover, it also becomes possible to exchange functional material, without becoming possible to exchange functional material with the body of a filter at the time of the car check performed every six months, for example, and troubling a user's hand, since the filter is made to be equipped with functional material.

[0023] Like, when [according to claim 2] functional material has the shape of the shape of a sheet, the shape of a stick, and a string, the assembliability of the functional material to a filter can be improved. The functional material according to claim 3 which gave the aroma function to the downstream of a filter like is arranged, and if the functional material which gave at least one function of a deodorization function, a deodorization function, and an anion generating function to the upstream is arranged, the fall of the vehicle indoor environment by a smell being mixed can be prevented.

[0024] Since at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function is given to the

body of a filter according to the filter for car air-conditioners concerning claim 4 like claim 1, without increasing the components mark which constitute a filter, while boiling the environment of the vehicle interior of a room markedly and being able to improve For example, maintenance and modification of a function are attained by exchanging the whole filter which contains the body of a filter, or a frame at the time of the car check performed every six months, without troubling a user's hand.

[Translation done.]

PRIOR ART

1.

[Description of the Prior Art] Since exchange of a filter became complicated on the relation incorporated in the instrument panel, as for the air conditioner of an automobile, what does not prepare a filter was in use, but a demand of the user to the environment of the vehicle interior of a room becomes severe, and recently, in order to remove the dust and dust which drift in a vehicle room, the thing equipped with the filter is also spreading. On the other hand, as a filter of an air conditioner for home use, adsorbent objects, such as activated carbon, a zeolite, or silica gel, are established in one, and what gave the deodorization function and the deodorization function to the filter is proposed and put in practical use.

EFFECT OF THE INVENTION

1.

[Effect of the Invention] since according to the filter for car air-conditioners concerning claim 1 aroma can be added to the air which blows off from the outlet of an air conditioner or a nasty smell and an offensive odor can be removed from this air, the environment of the vehicle interior of a room is boiled markedly, and it can improve. Moreover, it also becomes possible to exchange functional material, without becoming possible to exchange functional material with the body of a filter at the time of the car check performed every six months, for example, and troubling a user's hand, since the filter is made to be equipped with functional material.

[0023] Like, when [according to claim 2] functional material has the shape of the shape of a sheet, the shape of a stick, and a string, the assemblability of the functional material to a filter can be improved. The functional material according to claim 3 which gave the aroma function to the downstream of a filter like is arranged, and if the functional material which gave at least one function of a deodorization function, a deodorization function, and an anion generating function to the upstream is arranged, the fall of the vehicle indoor environment by a smell being mixed can be prevented.

[0024] Since at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function is given to the body of a filter according to the filter for car air-conditioners concerning claim 4 like claim 1,

without increasing the components mark which constitute a filter, while boiling the environment of the vehicle interior of a room markedly and being able to improve For example, maintenance and modification of a function are attained by exchanging the whole filter which contains the body of a filter, or a frame at the time of the car check performed every six months, without troubling a user's hand.

TECHNICAL PROBLEM

1.

[Problem(s) to be Solved by the Invention] As mentioned above, although what prepared the filter as an air conditioner of an automobile is recently spreading The filter by which the current proposal is made is a dust filter which made it the key objective to remove dust and dust. What gave an aroma function, the deodorization function, the deodorization function, the sterilization function, and the anion generating function was what the actual condition is not put in practical use, and will not have resulted by the time the environment of the vehicle interior of a room is fully improvable.

[0004] This invention is offering the filter for car air-conditioners which may improve the environment of the vehicle interior of a room further.

OPERATION

1.

[Means for Solving the Problem and its Function] The filter for car air-conditioners concerning claim 1 is a filter for car air-conditioners attached to the air conditioner of an automobile, and is equipped with the frame which holds the functional material which gave at least one function of the body of a filter from which dust and dust are removed, an aroma function and a deodorization function, a deodorization function, a sterilization function, and an anion generating function, and said body of a filter and functional material.

[0006] In this filter, since it has the functional material which gave at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function, to the air which passes a filter, aroma is given or it becomes possible to remove a nasty smell, an offensive odor, etc. from the air which passes a filter. Moreover, since functional material is prepared in the filter, it becomes possible to exchange functional material with the body of a filter at the time of the car check performed every six months, for example, and functional material can be exchanged, without troubling a user's hand. However, it is also possible to exchange the whole filter containing a frame.

[0007] Said functional material of a filter according to claim 2 has the shape of the shape of a sheet, the shape of a stick, and a string. Although the configuration of functional material can be set as arbitration according to the configuration of the installation location of a filter, or a filter, since the functional material of the shape of the shape of a sheet or a stick or a string has the good assemblability to a filter, it is a desirable gestalt.

[0008] A filter according to claim 3 arranges the functional material which gave at least one function of a deodorization function, a deodorization function, and an anion generating function to the upstream of said filter, and arranges the functional material which gave the aroma function to the downstream. Thus, since a sweet smell will be added after removing the disagreeable stinking thing component in the air introduced into the air conditioner if constituted, the fall of the vehicle indoor environment by a smell being mixed can be prevented.

[0009] The filter for car air-conditioners concerning claim 4 is a filter for car air-conditioners attached to the air conditioner of an automobile, and is equipped with the body of a filter which gave at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function while removing dust and dust, and the frame which holds said body of a filter.

[0010] In this filter, since at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function is given to the body of a filter, to the air which passes a filter, aroma is given or it becomes possible to remove a nasty smell, an offensive odor, etc. from the air which passes a filter. moreover, maintenance and modification of a function are attained, without troubling a user's hand by exchanging the whole filter which contains the body of a filter, or a frame at the time of the car check performed every six months, for example, while boiling the environment of the vehicle interior of a room markedly and being able to improve, without increasing the components mark which constitute a filter since these functions are given to the body of a filter.

[0011]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained, referring to a drawing. As shown in drawing 1, an air conditioner 1 is incorporated in the instrument panel of an automobile, the open air inlet 3 which carries out opening to vehicle outdoor, and the bashful inlet 4 which carries out opening to the vehicle interior of a room are formed, and the heat outlet 5 which carries out opening at crew's feet, the vent outlet 6 which carries out opening towards crew's upper part of the body, and the defroster outlet 7 which carries out opening towards a windshield are formed in the other end at the end section of the duct 2 of an air conditioner 1. A blower 8 is arranged at the upper section of a duct 2, and the heater core 9 and the evaporator 10 of a cooling system are arranged rather than the blower 8 at the downstream. Two or more change dampers 11 for changing the flow of the air in a duct 2 to the section in the middle of a duct 2 are formed. It is constituted so that the change of open air installation or bashful circulation, the change of heating or air conditioning, and the change of the outlets 5, 6, and 7 of air-conditioning air can be performed. After passing the heater core 9 or an evaporator 10 and adjusting temperature and humidity, the air introduced in the duct 2 from the open air inlet 3 or the bashful inlet 4 with the blower 8 is constituted so that the desired outlets 5 and 6 and 7 empty-vehicle interior of a room may be supplied. However, it is possible to adopt things other than the configuration mentioned above as an air conditioner 1.

[0012] The configuration by which it is characterized [of this invention] forms outlets 5 and 6 and the filter 20 from which the dust contained in the air-conditioning air supplied to 7 empty-vehicle interior of a room and dust are removed, and is in the point which gave at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function to this filter 20.

[0013] The filter 20 is infixed free [attachment and detachment] into the blower 8, and both the inlets 3 and the duct 2 between four, as shown in drawing 1. In this example, although not

illustrated, a blower 8 is arranged in the instrument panel by the side of before a passenger seat, and a filter 20 is made into an abbreviation horizontal and attached to the blower 8 bottom.

However, it is also possible to arrange free [attachment and detachment] to the section or each outlets 5 and 6, and the seven neighborhoods in the middle of a duct 2.

[0014] The filter 20 consists of frames 23 which hold the functional material 22 which gave at least one function of the body 21 of a filter from which dust and dust are removed, an aroma function and a deodorization function, a deodorization function, a sterilization function, and an anion generating function, and the body 21 of a filter and the functional material 22, as shown in drawing 2 and drawing 3.

[0015] the crosspiece which has arranged the frame 23 in the shape of crossing to the rectangular frame-like frame part 24 and inferior-surface-of-tongue side of a frame part 24 -- the section 25 -- having -- **** -- a frame part 24 -- on the way -- the claw part 26 and receiving part 27 which are prolonged to the inside are formed in the section up and down every fixed spacing, and the body 21 of a filter lays the periphery section in a receiving part 27, and is stopped by omission impossible by the claw part 26. However, as a frame 23, the thing of the configuration of the arbitration which suited the air conditioner 1 is employable.

[0016] The body 21 of a filter is equipped with the filter material 28 which has permeability, and the reinforcement frame 29 prepared in the periphery section. It is possible to adopt the fiber material and nonwoven fabric which consist of nature, products made of synthetic resin, or such mixed elegance, paper, etc. as a material of a filter material 28. Moreover, although a filter material 28 can also be constituted in abbreviation flatness, in order to set up the passage area of air greatly as much as possible, it is desirable to constitute in a wave cross section, as shown in drawing 2 and drawing 3. However, the reinforcement frame 29 can also be omitted.

[0017] Functional material 22 makes a filter material 28 and the base material of the shape of a sheet which has the same permeability carry out adhesion, sinking in, etc., and makes them support the matter which has functions, such as an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function, and this functional material 22 is arranged so that it may cover in a part of the whole top face of the filter member 28, or top face, and it is being fixed on installation or adhesives, a tape, etc. on a filter material 28. However, the functional material 22 may be arranged to the filter material 28 down side, and as shown in drawing 4, it may arrange the functional material 22 and 30 on vertical both sides of a filter material 28. When arranging on vertical both sides, it is desirable to use what gave the deodorization function, the deodorization function, or the anion generating function as functional material 22 of the upstream of the flow of air, and to use what has an aroma function as lower functional material 30. Moreover, it is also possible to use the functional material which made the functional material 22 from which a function differs unify in the shape of two or more laminatings.

[0018] As a material which has an aroma function, it is possible to use the natural aromatic of an animal system, a vegetable system, and a mineral system and synthetic perfume. Moreover, when exchanging by check etc. for six months, it is desirable to constitute so that fragrance may be guaranteed within the period. Although a liquefied aromatic may be used, since it is difficult to set up aroma time amount for a long time, it is desirable to use the shape of a solid and a gel aromatic.

[0019] As a material which has a deodorization function and a deodorization function, the material of common knowledge, such as mineral salt, such as activated carbon, a zeolite, silica gel,

an iron sulfate, a zinc compound, a silicate mineral, an aluminum salt, and silicate, a citric acid, ascorbic-acid iron, and various plant extracts, can be used.

[0020] As a material which has an anion generating function, a tourmaline ore can use suitably. By contacting water, this tourmaline ore generates hydrogen and hydroxyl ion (anion), and it is that this hydroxyl ion floats in air, and air is defecated or it deodorizes [deodorizes a nasty smell and an offensive odor and] them. Moreover, as mentioned above, since a tourmaline ore discovers a cleaning effect by contacting water, it may arrange an absorptivity polymer to the sheet inside of the body so that a tourmaline ore may be contacted, and may promote contact for moisture. However, if an anion can be generated, it is also possible to use materials other than a tourmaline ore.

[0021] In addition, it is also possible to use stick-like functional material 22A like filter 20A shown in drawing 5 and drawing 6. In this case, since functional material 22A is fixable so that it may not move to the wave trough section of the body 21 of a filter to the body 21 of a filter by arranging functional material 22A, it is desirable. Moreover, as functional material 22, the thing of the shape of the shape of a string, the shape of tubed and a bead, or a chip may be adopted. Moreover, it is also possible to omit the functional material 22 and to give at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function to a filter 20.

DESCRIPTION OF DRAWINGS

1.

[Brief Description of the Drawings]

[Drawing 1] The whole air-conditioner block diagram of an automobile

[Drawing 2] The decomposition perspective view of a filter

[Drawing 3] The important section sectional view of a filter

[Drawing 4] The important section sectional view of the filter of other configurations

[Drawing 5] The decomposition perspective view of the filter of other configurations

[Drawing 6] The important section sectional view of this filter

[Description of Notations]

1 Air Conditioner 2 Duct

3 Open Air Inlet 4 Bashful Inlet

5 Heat Outlet 6 Vent Outlet

7 Defroster Outlet 8 Blower

9 Heater Core 10 Evaporator

11 Change Damper

20 Filter 21 Body of Filter

22 Functional Material 23 Frame

24 Frame Part 25 Crosspiece -- Section

26 Claw Part 27 Receiving Part

28 Filter Material 29 Reinforcement Frame

30 Functional Material

20A Filter 22A Functional material

CLAIMS

1.

[Claim(s)]

[Claim 1] The filter for car air-conditioners characterized by to have the frame which holds the functional material which is the filter for car air-conditioners attached to the air conditioner of an automobile, and gave at least one function of the body of a filter from which dust and dust are removed, an aroma function and a deodorization function, a deodorization function, a sterilization function, and an anion generating function, and said body of a filter and functional material.

[Claim 2] The filter for car air-conditioners according to claim 1 said whose functional material has the shape of the shape of a sheet, the shape of a stick, and a string.

[Claim 3] The filter for car air-conditioners according to claim 1 or 2 which has arranged the functional material which gave at least one function of a deodorization function, a deodorization function, and an anion generating function to the upstream of said body of a filter, and has arranged the functional material which gave the aroma function to the downstream.

[Claim 4] The filter for car air-conditioners which is a filter for car air-conditioners attached to the air conditioner of an automobile, and is characterized by having the body of a filter which gave at least one function of an aroma function, a deodorization function, a deodorization function, a sterilization function, and an anion generating function while removing dust and dust, and the frame which holds said body of a filter.

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